

11-12-04

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Express Mail No. EV 519 866 878 US

<b>PETITION UNDER 37 C.F.R. §1.102</b>  Address to: Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450	Attorney Docket	KEMP-009
	Applicant	DECLERCK, JÉRÔME MARIE JOSEPH
	Serial Number	10/618,565
	Filing Date	July 11, 2003
	Group Art Unit	2621
	Examiner Name	
	Title:	"REGISTRATION OF MULTI-MODALITY DATA IN IMAGING"

Sir:

The instant application was filed on July 11, 2003. To date, no substantive examination has occurred in this application. This is a Petition to Make Special, in accordance with 37 C.F.R. §1.102.

Applicants hereby request that the instant application be granted special status and that examination be advanced because the invention may be used in the diagnosis, treatment or prevention of cancer.

The invention described in this application relates to the registration of images of different modalities. For example, one modality may provide accurate structural information, such as an X-ray image or magnetic resonance image (MRI), and the other modality may provide functional information (such as metabolic rate information), e.g. by PET or SPECT imaging. Imaging modalities such as X-ray imaging are useful in that they give accurate structural information (for example the skeleton is clearly visible and so the position of structures relative to the bones can be established clearly). But soft structures such as tumors do not show up particularly well on X-ray or anatomical MRI. Soft structures such as tumors show up very well on functional images such as PET or SPECT images where a radioactive marker is introduced into the patient, this marker collecting in regions of high metabolic activity such as tumors. However, a PET or SPECT image does not give accurate positional information because, in general, structures with clearly defined locations, such as bones, do not show up.

A clinician examining a functional image such as PET or SPECT image needs to know whether areas of high metabolic activity are images of structures which normally have high metabolic activity (such as muscles being used in breathing or talking), or naturally high take-up (e.g. liver and kidneys), or whether they are abnormal, such as tumors. To assess this, it is necessary to know where the structure

is in the body, this is difficult because others structures whose location is clearly known do not show up very well.

According to aspects of the subject invention, a functional image may be registered (aligned) and overlaid with a structural image obtained from, for example, X-ray imaging, e.g., by using a combination of emission and transmission images. The subject invention may be used to determine where a high metabolic activity structure is in the body, thereby aiding in the identification of the structure. The subject invention may be used to diagnosis cancer by enabling the clinician to determine with more accuracy the location of a structure showing high metabolic activity. This allows it to be identified as tumor/non-tumor, and also enables the precise location of the tumor to be determined.

The subject invention may be used in the treatment of cancer. For example, a surgeon planning surgical intervention, for example to remove a tumor, needs to know the precise location of the tumour in the body. The subject invention may be used to observe the location of a tumour much more clearly in relation to the skeleton. The surgeon may therefore plan the surgery with greater accuracy.

Furthermore, the subject invention may also be used in the treatment of cancer by radiotherapy procedures. For example, if treatment is to be by way of radiotherapy, it is advantageous if the irradiating radiation is confined to as small an area as possible. Ideally the radiation should be confined to the tumour itself to avoid damage to surrounding tissue. One way of achieving this is by using several intersecting beams of radiation, which intersect only on the tumour. Thus the individual beams may have a low intensity, but the intensity in the region of the tumour is high because of the intersection of the several beams. Planning such radiation treatment in this way again requires an accurate knowledge of the location and size of the tumour, which may be determined using the subject invention.

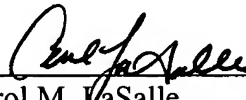
Fig. 13, e.g., shows the use of the subject invention in the detection and location of tumors. Figure 13, shows a cross-section through the body of a patient and is a superposition of an x-ray image and a SPECT image. The bright structure located to the left-hand region of the slice and at the intersection of the orthogonal lines is an image of a tumour.

Accordingly, Applicants respectfully request that examination of the instant application be made special and advanced.

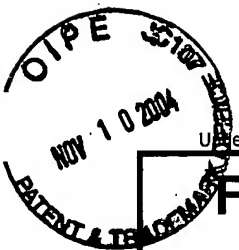
This Petition is accompanied by the requisite fee under 37 C.F.R. §1.17(i). The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-0815, order number KEMP009.

Respectfully submitted,  
BOZICEVIC, FIELD & FRANCIS LLP

Date: 11/10/04

By:   
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**FEE TRANSMITTAL**  
**for FY 2004**

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT (\$)** 130.00**Complete if Known**

Application Number	10/618,565
Filing Date	July 11, 2003
First Named Inventor	DECLERCK, JÉRÔME MARIE JOSEPH
Examiner Name	
Art Unit	2621
Attorney Docket No.	KEMP-009

**METHOD OF PAYMENT (check all that apply)**☐ Check ☐ Credit Card ☐ Money Order ☐ Other ☐ None☒ Deposit Account:

Deposit Account Number	50-0815
Deposit Account Name	Bozicevic, Field & Francis, LLP

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments☒ Charge Any Additional Fee(s) Required under 37 C.F.R. 1.17.☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1001 790	2001 395	Utility filing fee
1002 350	2002 175	Design filing fee
1003 550	2003 275	Plant filing fee
1004 790	2004 395	Reissue filing fee
1005 160	2005 80	Provisional filing fee

**SUBTOTAL (1)****2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE**

	Extra Claims	Fee from below	Fee Paid
Total Claims	-20** =	x	=
Indep. Claims	-3** =	x	=
Multiple Dependent			=

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 88	2201 44	Independent claims in excess of 3
1203 300	2203 150	Multiple dependent claim, if not paid
1204 88	2204 44	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

**SUBTOTAL (2) \$**

\*\*or number previously paid, if greater; For Reissues, see above.

**FEE CALCULATION (continued)****3. ADDITIONAL FEES**

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1051 130	2051 65	Surcharge - late filing fee or oath
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet
1053 130	1053 130	Non-English specification
1812 2,520	1812 2,520	For filing a request for <i>ex parte</i> reexamination
1804 920*	1804 920*	Requesting publication of SIR prior to Examination action
1805 1,840	1805 1,840*	Requesting publication of SIR after Examiner action
1251 110	2251 55	Extension for reply within first month
1252 430	2252 215	Extension for reply within second month
1253 980	2253 490	Extension for reply within third month
1254 1,530	2254 765	Extension for reply within fourth month
1255 2,080	2255 1,040	Extension for reply within fifth month
1401 340	2401 170	Notice of Appeal
1402 340	2402 170	Filing a brief in support of an appeal
1403 300	2403 150	Request for oral hearing
1451 1,510	1451 1,510	Petition to institute a public use proceeding
1452 110	2452 55	Petition to revive - unavoidable
1453 1,370	2453 685	Petition to revive - unintentional
1501 1,370	2501 685	Utility issue fee (or reissue)
1502 490	2502 245	Design issue fee
1503 660	2503 330	Plant issue fee
1406 130	1460 130	Petitions to the Commissioner
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)
1806 180	1806 180	Submission of Information Disclosure Stmt
8021 40	8021 40	Recording each patent assignment per property (times number of properties)
1809 790	2809 395	Filing a submission after final rejection (37 CFR § 1.129(a))
1810 790	2810 395	For each additional invention to be examined (37 CFR § 1.129(b))
1801 790	2801 395	Request for Continued Examination (RCE)
1802 900	1802 900	Request for expedited examination of a design application

Other fee (specify) \_\_\_\_\_

\*Reduced by Basic Filing Fee Paid

**SUBTOTAL (3) (\$)**

130.00

**SUBMITTED BY****Complete (if applicable)**

Name (Print/Type)	Carol M. LaSalle	Registration No. (Attorney/Agent)	39,740	Telephone	(650) 833-7774
Signature		Date	11/10/2004		

**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

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PTO/SB/21 (05-03)

Approved for use through 04/30/2003. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)		Application Number	10/618,565
		Filing Date	July 11, 2003
		First Named Inventor	DECLERCK, JÉRÔME MARIE JOSEPH
		Group Art Unit	2621
		Examiner Name	
Total Number of Pages in This Submission		Attorney Docket Number	KEMP-009
<b>ENCLOSURES (check all that apply)</b>			
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Documents <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) <input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Petition to Make Special; postcard	
Remarks			
<b>SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT</b>			
Signing Attorney/Agent (Reg. No.)	CAROL M. LASALLE, REG. NO. 39,740 BOZICEVIC, FIELD & FRANCIS, LLP		
Signature			
Date	November 10, 2004		

**EXPRESS MAIL LABEL NO. EV 519 866 878 US**

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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